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— D. Lothrop Company have just ready "Eggs: Facts and Fancies about Them," a book brimful of information about eggs, though not a cook-book, compiled by Miss Anna Barrows

LETTERS TO THE EDITOR.

* Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith. The editor will be glad to publish any queries consonant with the character of the journal. On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

Supposed Aboriginal Fish-Weirs in Naaman's Creek, near Claymont, Del.

INCORRECT and exaggerated accounts of the aboriginal remains discovered in Naaman's Creek, near its mouth, having appeared in various scientific and other journals, by which the public have been led to believe that remains of a people akin to the lake-dwellers of Europe were found in alluvial deposits at the place referred to, let me here state that the pile-dwelling theory is all bosh, and any such statements were made without my knowledge or consent. My friend, Professor Haynes of Boston, when he wrote his article on the prehistoric archaeology of North America for the "Narrative and Critical History of North America," unfortunately copied the atrociously garbled version of my letter published in the *American Antiquarian* of November, 1887, from which the false impressions referred to have arisen. In the letter which I sent to the editor of the *Antiquarian*, I never made use of the term "river-dwelling sites," nor did I suggest that the wooden stakes "once supported shelters of early man that were erected a few feet above the water." I distinctly stated that I coincided with the fisherman in his suggestion about the spot having been a fishing-place of the Indians; and luckily this portion of my account has been published correctly, as by reference to p. 364 of that magazine, for November, 1887, will more fully appear.

When I heard that Professor Haynes was preparing an account of my work carried on for the Peabody Museum, Harvard University, I wrote him a letter, calling attention to the fact that I deemed the wooden piles or stakes to be fish-weirs, enclosing him at the same time a typical collection from three spots in the creek's bed that had been found fruitful, and for the sake of convenience designated, at Professor Putnam's suggestion, stations A, B, and C, so that each implement dredged up (by hand) could be located on my note-book and working plan. For some inexplicable reason, Professor Haynes seems to have been more impressed with the *American Antiquarian's* version of the affair than my own statements, adopting as his own my suggestions of the fish-weir theory, which but re-echoes that of the fisherman who discovered the wooden stake-ends. I also requested in this letter that the proof-sheets relating to my work for the Peabody Museum be forwarded for correction; but in Professor Haynes's reply to me he states, that as the publishers wanted his manuscript immediately, a portion of it being already in press, this would be impossible. I make these remarks with no intention of attacking the statements of Professor Haynes, for whom I have the most sincere regard. I simply desire to show that he has been misled by following the *American Antiquarian's* version of the find, and suggest that I should have been consulted as to the correctness of the details given, especially in so important a work as the "Narrative and Critical History of America." Any one who will take the trouble to read p. 364 of the *American Antiquarian* will also see not only the errors that I have already corrected, but others still more ridiculous, where, after my return from France, I am quoted as again having visited "the flats in the cave at Naaman's Creek." What connection there is between a cave and the mud flats around the mouth of Naaman's Creek, I am at a loss to understand. It is evident that such statements as these are the result of either gross carelessness on the part of the editor of the *American Antiquarian*, or else may be referred to his printer.

My object in stating in my letter to the *Antiquarian* that during my visit to Europe I saw wooden specimens in archaeological collections from the Swiss lake-dwellings was because the dressing of these pile structures with stone implements recalled those

I had remarked upon the ends of wooden posts or stakes in the bed of Naaman's Creek, near its mouth (not "on the Delaware marshes," as erroneously set forth in the *American Antiquarian*). This reference to a similarity of the stone axe dressings on the wooden piles used by the lake-dwellers of Europe to those of the wooden stake-ends found in alluvial deposits at Naaman's Creek, in my opinion, has occasioned all those glowing accounts which have lately been published by enthusiastic collectors, and journalists, in regard to "Remains of an Indian City at the Mouth of Naaman's Creek," "Lake Dwellings and Villages in America," "Indian Huts in the Naaman's Creek Marshes," etc.,—most glorious accounts, indeed, in which "Keller's Lake Dwellers of Europe" has been largely drawn upon, and even added to. Let me now make another attempt to give a correct version of the work carried on at Naaman's Creek for the Peabody Museum, loath as I am to spoil the romantic ideas that have emanated from certain enthusiasts in regard to them. I shall simply here repeat a copy of my letter sent to the *American Antiquarian* several years ago (Oct. 20, 1887), allowing the readers of *Science*, and others interested in the subject, to compare this correct statement with the incorrect version already referred to.

"In 1870 a fisherman living in the village of Marcus Hook, Pennsylvania, gave me some spear and arrow heads chipped from a dense argillite, as well as other rude implements of a prehistoric people which he had found on the edge of some extensive mud flats that border Naaman's Creek, a small tributary of the Delaware River. The finder stated that while cat-fishing among the reeds and spatter docks he had noticed here and there the ends of logs or stakes protruding from the mud; that they seemed to be placed in rows (to use his own words, 'they stuck out just above the mud, were as rotten as punk, and he could see no reason why they'd been placed there by white folks; more than likely the Indians in old times usem 'em to hitch their canoes to when spearing fish, and that was the reason the darts, axes, and such like, were found around there'). A visit to the place made a few days afterward, in company with this simple-minded old fisherman, disclosed the ends of much decayed ends of stakes, or wooden structures, protruding here and there above the mud, just as he had stated, confirming what I had before heard in regard to the wooden structures from a pot-hunter, or professional reed-bird gunner, who encountered them while poling his skiff off the marsh into the creek after the water had fallen somewhat on the ebb tide. At that time (1870) I coincided in the fisherman's views about the spot having been a fishing-place of the Indians, as the finds of argillite implements seemed only to exist in the neighborhood of the wooden structures or stake-ends. More mature deliberation, based upon hand-dredging and excavation, made since my first visit (1870), only serves to confirm my opinion that they were fish-weirs.

"Professional duties did not permit me at this time (1870) to give the matter serious attention, and it was not until my return from France in 1880, whither I had gone to pursue studies at the Ecole des Beaux Arts and Ecole d'Anthropologie, that I again visited the spot on the edge of the mud flat at Naaman's Creek (the north-east side of the mud flat referred to forms a part of the banks of the creek, near its mouth), where the finds had been made. While abroad I studied, in spare moments, many archaeological collections, especially those from the Swiss lakes, and visited various prehistoric stations of Switzerland. The rude dressings of the pile-ends were in some cases evidently made with sharp stone implements, recalling the cuts I had seen on the wooden stake-ends in northern Delaware. Since 1880 I have quietly examined the spot, excavating the few wooden ends that remained, preserving several that did not fall to pieces. Careful notes were made of the dredgings and excavations. These operations were carried on at low tide. The work was conducted principally by myself, aided at times by interested friends. The results, so far (1877), seem to indicate that the ends of piles embedded in the mud, judging from the implements and other *débris* scattered around them, had once served as supports to structures intended for fish-weirs, these in all probability projecting a few feet above the water, and were no doubt interlaced with wattles, or vines, to more readily bar the passage of

fish from the creek into the river. The upper portion of these wooden structures has entirely disappeared in the long lapse of time that has ensued since they were placed there. The edge of the flats on which the stakes stood¹ was covered with about two and a half to three feet of water on the flood tide. At slack water it forms a low mud-bank slanting toward the creek. Three different stations² were located, probably all that exist, in the bed of the creek referred to. This opinion is based upon careful examinations, made within the past four years, of nearly every inch of ground in the neighborhood of the wooden stake-ends, by dredging in sections between certain points marked upon the creek's bank. The implements found in one of the stations are generally made of argillite, with a few of quartz and quartzite. Some were very rude in character, and not unlike the palæoliths found by Dr. C. C. Abbott in the Trenton gravels.³ Objects of stone and pottery rather better in finish than those at station A have been found at the two other stations, B and C."

The remainder of my letter of November, 1887, is correct: the other portions must be read subject to the changes that this repetition may suggest, which have been copied from a duplicate letter made by me before sending it (in October, 1889) [1887? —Ed.] to the journal referred to, for publication.

A unique collection from the supposed aboriginal fish-weir sites is now at the Peabody Museum, Harvard University, where any one interested in the subject may examine them. Most of the objects presented were collected by myself and friends, whose names are attached to their specimens. Work was abandoned on the locality two years ago, careful hand-dredging having exhausted the relic-beds. Last summer the steam-dredge used in deepening the creek's bed, so that sloops might approach the brick-yard standing on its bank, uprooted the various stations, A, B, and C, completely obliterating them. A few specimens of interest were, however, secured by some of the workmen in the brick-manufactory and myself. Some of these specimens have been presented to the Peabody Museum, with letters from the donors in regard to them.

¹ These had the alluvium excavated from around them, and were photographed in place, before removal.

² The term "station" was adopted at Professor Putnam's suggestion, because certain spots in the creek's bed, several feet apart, were found to yield implements.

³ It may be well to remark, that, since this letter has been published in the *American Antiquarian*, implements of like kind have been found in the boulder clay at the brick-yard alongside of Naaman's Creek mouth. The implements that were brought up by the hand-dredge at station A may therefore have been washed out of the brick and boulder clay desposits, and scattered among the alluvial deposits in which the wooden stakes were found.

I hope this letter, giving a brief *résumé* of the finds at Naaman's Creek mouth, will cause all absurd romance in regard to pile-dwellers on the Delaware to cease. If they ever did exist, I have certainly failed to find any traces of such a people, and never upheld any such nonsensical theories. HILBORNE T. CRESSON.

Philadelphia, Feb. 6.

Oscillations of Lakes (Seiches).

THE ten-minute wave that Mr. Ledyard reports on Cazenovia Lake, N. Y., in *Science* of Feb. 7, is apparently an oscillation of the same kind as those known in Switzerland by the name of *seiches*. They have been minutely studied for Lake Geneva by Professor Forel of Morges, Switzerland, who has written many reports on his observations for the *Archives des Sciences*, about 1877-80. He regards them as wave-like oscillations, commonly uninodal, of the whole body of water in the lake, produced by external disturbance, such as an earthquake, or a change of atmospheric pressure like that occurring in thunder-storms or wind gusts. He finds that the full period of oscillation for the uninodal wave is $2l \div \sqrt{gh}$, in which l is the length of the lake, and h the depth; that is, the velocity of the wave is proportional to the square root of the depth. Sometimes the *seiche* is transverse, or from side to side, instead of longitudinal or from end to end. In Lake Geneva the longitudinal *seiche* has a full period of 73 minutes, which, for the length of 73.2 kilometres, indicates a mean depth of 114 metres. The transverse *seiche* oscillates in 10 minutes and 17 seconds, where the breadth of the lake is 13.8 kilometres, indicating a mean depth of 205 metres. These depths agree well with the results of soundings. Similar phenomena have been described for other Swiss lakes.

Very little has been said about *seiches* in this country. Professor John LeConte has called attention to the probability of their occurrence in Lake Tahoe, and predicted their periods by Forel's formula as 18 and 13 minutes (*Overland Monthly*, 1883). *Science* (May 7, 1886, p. 412) has a note on the *seiches* of Lake Ontario, as observed by Rhodes at Oswego, N. Y., indicating a period of about an hour. The lakes of central New York, near Mr. Ledyard, afford the best possible opportunity for examination in this regard. A simple self-recording apparatus to determine the oscillations of water-level could be driven by an ordinary clock; and a month's record from the end and the middle side of a lake would probably suffice to determine its *seiches* with fair accuracy.

W. M. DAVIS.

Harvard College, Feb. 10.

I took Cold,
I took Sick,
I TOOK

**SCOTT'S
EMULSION**

RESULT:

I take My Meals,
I take My Rest,

AND I AM VIGOROUS ENOUGH TO TAKE ANYTHING I CAN LAY MY HANDS ON; getting fat too, FOR Scott's Emulsion of Pure Cod Liver Oil and Hypophosphites of Lime and Soda NOT ONLY CURED MY Incipient Consumption BUT BUILT ME UP, AND IS NOW PUTTING

FLESH ON MY BONES

AT THE RATE OF A POUND A DAY. I TAKE IT JUST AS EASILY AS I DO MILK." SUCH TESTIMONY IS NOTHING NEW. SCOTT'S EMULSION IS DOING WONDERS DAILY. TAKE NO OTHER.

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HOSPITAL REMEDIES.

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This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, *has ruined more stomachs than alcohol*. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.

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